

Optical coherence tomogram for guiding percutaneous coronary intervention

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Introduction: OCT as an intravascular imaging modality for guiding percutaneous coronary intervention is graduating from a research status to a routine modality in the cath lab. It provides high resolution axial and longitudinal images of the vessel that can be rapidly acquired and used for guiding PCI in a variety of situations.

Aims: To present the common indications for which we have performed OCT in our cath lab, the additional findings that we got over and above angiogram alone and the situations where OCT findings has led to a change in the strategy of management.

Methods: We performed OCT during PCI in 48 vessels in 40 patients over the last 18 months. A total of 66 runs were obtained in these 48 vessels (both pre and post PCI runs in 12 vessels, only pre PCI runs in 6 vessels & only post PCI runs in 30 vessels). Omnipaque is the contrast agent used for clearing the blood in all cases except one in whom dextran was used because of renal failure.

Results: The indications for pre PCI runs (18 runs) were lesion assessment in 12, stent thrombosis in 3, late stent evaluation in 2 and chronic total occlusion after predilation in one. All of them had findings that were not seen on angiogram and in 9 of them these findings changed the management strategy. The most common indication of OCT after PCI was sub optimal PCI result ($n=30$) as suspected by angiogram followed by BVS evaluation in complex lesions ($n=18$). All the BVS evaluations and 50 % of sub optimal PCI evaluations had additional findings not seen on angiogram and there was a change in management strategy in the form of additional high pressure post dilation, additional stenting for edge dissection or a significant distal lesion and avoidance of high pressure post dilation in a few with ACS where thrombus prolapse was the cause of sub optimal result. There was one case of stent deformation caused by OCT catheter and one patient had ventricular tachycardia during prolonged contrast injection. There was no MACE on a mean follow up of 241 ± 90 days.

Conclusion: OCT when performed for specific goal oriented indications will provide additional findings in majority of them. Most of these findings changes management strategy and usually increases number of post dilations and additional stenting. It is extremely useful during PCI using BVS.

2 year experience of primary percutaneous coronary intervention in a tertiary care centre

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Background: Primary angioplasty is a well recommended and widely used procedure for patients with acute myocardial infarction, worldwide. The present study aimed at evaluating the experience of all Primary Percutaneous intervention in 2 years in Yashoda Super speciality hospital, Secunderabad.

Methods: The study was a retrospective analysis of all primary PCI cases done from June 2012 to June 2014 in the cardiac unit of the hospital. The data analysed included demographic, procedural and procedure results.

Results: 363 cases were done in period of 2 years. The mean age of the patients was 54.99 ± 11.64 years. The minimum age was 25 years and maximum was 90. Majority were males (76.58%). 147 cases presented with AAMI, 88 cases were diagnosed as IWMI, 34 and 20 had a combination of IWMI+ RVMI and IWMI + PWMI respectively. The average door to balloon time was 57.06 ± 32.06 min. Angiography revealed single vessel disease in 195 cases, double vessel disease in 89 cases and 72 were triple vessel disease. LAD found to be the culprit vessel in 44% and RCA in 34%. PTCA + stent was done in 331 cases whereas only POBA was done in 32 cases. Thrombus aspiration was done in 32.33% of stent procedures. PCI success with flow TIMI-3 was achieved in 95.55%. The end result was excellent in 327 cases and only 4 were unsuccessful. Complications encountered during procedures were hypotension and subsequent IABP insertion (3%), Ventricular Tachycardia/Ventricular Fibrillation and subsequent defibrillation (0.8%), Respiratory arrest and mechanical ventilation (0.5%) and cardiac arrest and CPR (0.2%). No patients were shifted for emergency CABG.

Conclusion: PCI was safe and successful in almost all cases done in our centre. It was effective in achieving reperfusion and reducing immediate mortality in patients with acute myocardial infarction.

Safety and outcome of day care based coronary angioplasty in stable cardiac patients – Pilot Trial

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Background: Trans radial percutaneous coronary intervention (PCI) in a day-care (DC) setting might reduce logistic constraints on hospital resources. There are no published data DC- PCI from India.

Objective: To study safety and outcomes in stable cardiac patients undergoing DC-PCI.

Methods: This is a single centre nonrandomized prospective controlled trial of patients undergoing elective radial PCI and sent home on same day or after overnight stay after an uncomplicated procedure. There were no angiographic exclusion criteria except left main disease. Primary end point was composite of major adverse cardiac and cerebral events until 24 hours after PCI. Secondary end points were puncture site complications, contrast induced injury, composite of major adverse cardiac and cerebral events within six months after PCI.

Results: From 1 March 2013 to 31 December 2013, 56 patients were enrolled for day care percutaneous coronary intervention. In same time period we enrolled 56 patients among those who underwent PCI as per routine hospital protocol. No major adverse cardiac and cerebral events were noted in first 24 hours in the DC group. One patient from DC group developed anterior wall myocardial infarction three days after PCI. Coronary angiogram showed recanalised left anterior descending artery. No other incidence of major adverse cardiac and cerebral events noted on six months of follow up. Table 1 Procedural Characteristics.

Characteristic	Case n (%)	Control n (%)
Multivessel intervention	4 (7)	5 (9)
Stent procedure	54 (96)	53 (95)
Balloon angioplasty	0	2 (3.6)
DEB	2 (3.6)	1 (2)
Procedural success	56 (100)	56 (100)

Conclusion: Our study showed safety and feasibility of DC PCI in the Indian scenario. However a larger study may be needed to establish the findings.

Immediate and in-hospital complications of percutaneous coronary intervention

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Background: Ischemic Heart Disease (IHD) is a major and increasing health care issue in Bangladesh. With the combination of sophisticated equipment, experienced operators, and modern drug therapy, coronary angioplasty has evolved into an effective nonsurgical modality for treating patients with CAD.

Methods: A prospective study was conducted in National Institute of Cardiovascular Diseases (NICVD) Dhaka ; Al-Helal Heart Institute and Hospital, Mirpur Dhaka; Urobangla Heart Hospital, Lal-matia, Dhaka , Lab-Aid Cardiac Hospital, Dhaka and Metropolitan Hospital, Mohakhali, Dhaka from August 2003 to July 2013. A total of 1100 patients underwent coronary angioplasty and stenting. Angioplasty was done as elective & adhoc basis.

Results: Most of the cases are of middle age group. 88% are male. 58% are smokers, 40% hypertensives, 33% have diabetes and 28% are dyslipidemic. 54% had STEMI, 20% had unstable angina, 14% had chronic stable angina. 75% had single vessel disease, 20% had double vessel diseases, 5% had triple vessel diseases. 90 patients had total occlusion. 47 % had lesion in LAD, 33% had lesion in RCA, 12% had lesion in LCX. In most of the indicated cases PCI was done efficiently with very minimum rate of failure & complications. In hospital mortality was only 1.6% with 0.8% periprocedure MI - due to sub acute stent thrombosis.

Conclusion: In the field of management of coronary artery disease percutaneous coronary intervention (PCI) is the internationally recognized standard treatment worldwide for more than last 3 decades. Our result of PCI correlates well with the other studies worldwide, though the study population is not big enough & there are many lacks of logistics in our country. Complications during and in-hospital period are very few.

Clinical profile and outcomes of patients who underwent small vessel coronary stenting using drug eluting stents

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Background: Small vessel coronary stenting constitutes 30% to 50% of all Percutaneous Coronary Interventions (PCI) worldwide. Small vessel coronary artery disease is common among Diabetics and smokers.

Methods: We studied 75 patients who underwent small vessel coronary stenting with Drug eluting stents (DES) of < 2.5 mm in our institution from January 2013 to January 2014. Demographic profile, risk factor profile, angiographic details, early (1 month) and late (6 months) outcomes of the patients were analysed.

Results: Most of them were males between 40 to 50 years of age. 77.3% had Diabetes mellitus, 64% had Hypertension, 82.7% had Dyslipidemia and 68% were smokers. ST elevation myocardial infarction was the commonest clinical presentation (70%) followed by Non ST elevation myocardial infarction (23%) and chronic stable angina (7%).

Angiographically most of the lesions were Type B lesions. LAD was the commonest vessel addressed (64%) followed by RCA and LCX. 46% of all patients had Double vessel disease. 53% of patients had proximal segment lesions, 38% had mid segment lesions and the rest had distal lesions.

60% of the patients received Everolimus-eluting stents and 40% received Zotarolimus-eluting stents.

Early (1 month) outcome analysis revealed a MACE rate of 2.6% (2 out of 75 patients had Sub acute thrombosis). Late (6 month) outcome analysis revealed a MACE rate of 4% (3 out of 75 patients developed In-stent restenosis requiring repeat revascularisation).

Conclusion: Diabetes is the commonest risk factor for small vessel coronary artery disease. Even though Coronary Artery Bypass Grafting was the preferred mode of revascularisation for such patients in the past, our study revealed that PCI using third generation DES is a safe and feasible alternative mode of revascularisation.

Operational utility of fractional flow reserve (FFR) in guiding the decision for coronary revascularization in patients of coronary artery disease in Indian scenario

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Background: Fractional flow reserve (FFR) is now well established as a simple and reliable technique for assessing the functional severity of coronary stenosis and guiding the decision for revascularization. The operational utility of FFR will depend on the frequency with which the addition of FFR data changes the revascularization decision based on conventional criteria alone.

Methods: We enrolled 40 patients with coronary lesions of intermediate/uncertain severity whose revascularization decision remained ambiguous as assessed by the primary operator after clinical and non-invasive data (TMT, DSE, stress MIBI) and coronary angiography.

All lesions with diagnostic uncertainty were subjected to FFR. Intracoronary bolus adenosine (80-100 µg) was administered to induce maximum hyperaemia, and FFR was estimated with 0.014 inch sensor tipped Pressure Wire CertusTM (St. Jude Medical) attached with St Jude Medical Radi Analyser TM Xpress – 12711 – SN- 3249. Coronary lesions were considered significant at FFR ≤ 0.8. **Results:** Forty patients were enrolled for the study, with 79.3% males. 58 coronary lesions were found to be of intermediate/